

# Environmental Protection Agency

## **Vehicle Fuel Exchange Procedure**

This procedure is written for the Environmental Protection Agency, National Vehicle and Fuel Emissions Laboratory (NVFEL) internal use. The use of specific brand names by NVFEL in this procedure are for reference only and are not an endorsement of those products. This document may be used for guidance by other laboratories.

### **NVFEL Reference Number**

702K

### **Implementation Approval**

Original Procedure Authorized by EPCN #095 on 04-30-1990

### **Revision Description**

- |     |            |   |
|-----|------------|---|
| (1) | 06-03-1997 | The purpose of this change is to revise the procedure as described in EPCN #163. All steps affected by this change are identified with (1) in the margin. |
| (2) | 02-18-2000 | The purpose of this change is to revise the procedure as described in EPCN #271. All steps affected by this change are identified with (2) in the margin. |

### Table of Contents

1. Purpose.....	3
2. Test Article Description .....	3
3. References .....	3
4. Required Equipment.....	3
5. Precautions .....	4
6. Visual Inspection.....	5
7. Test Article Preparation .....	5
8. Test Procedure.....	6
100 Fuel Drain Sequence .....	6
200 Fueling Gasoline Vehicles .....	8
300 Fueling Methanol Vehicles - PREP and HFET .....	14
400 Fueling Methanol Vehicles - FTP.....	16
9. Data Input.....	17
10. Data Analysis .....	18
11. Data Output .....	18
12. Acceptance Criteria .....	18
13. Quality Provisions .....	19

### Attachments

Attachment A, Form 702-01, Vehicle Fuel Exchange .....	20
Attachment B, Fuel Spill Clean-up .....	21

**1. Purpose**

The purpose of this procedure is to prepare gasoline- or methanol-fueled vehicles for preconditioning (PREP) or emission testing by draining all the fuel from the tank(s) and refueling with the required Environmental Protection Agency (EPA) test fuel.

**2. Test Article Description**

Vehicles which are being preconditioned (TP 703) and vehicles which are being prepared for an exhaust emission test (TP 707).

**3. References**

- 3.1 “Code of Federal Regulations” (CFR), Title 40, Part 86, Subparts A and B
- 3.2 Environmental Protection Agency (EPA) current safety policies

**4. Required Equipment**

- 4.1 Form 702-01: 05-08-97, Vehicle Fuel Exchange (Attachment A)
  - 4.2 Form 902-01, Test Status Report
  - 4.3 Fuel drain pump, located in the fuel bay.
  - 4.4 Vehicle mover (crab)
  - 4.5 Fuel dispensing equipment, including nozzles and instruments for measuring fuel temperature and quantity, grounding device
  - 4.6 For Phase II Fuel testing, a portable fuel cart is used to chill the gasoline.
  - (2) 4.7 Safety equipment, such as methanol-resistant gloves and eye protection.
- For Methanol fueled vehicles: Methanol fuel drain, located on the methanol fuel dispensing rack. Stainless steel fuel container, approved for methanol fuels, equipped with an on/off valve, fuel container cart, dispensing hose, digital thermometer, and grounding device

## 5. Precautions

Failure to comply with the precautions outlined in this section could result in an explosion, fire, personal injury, or loss of life.

- 5.1 Only EPA laboratory personnel may exchange fuel.
- 5.2 All fueling operations are to be performed in the fuel bay in compliance with fuel bay safety precautions as specified by EPA safety policies.
- 5.3 A technician must be present to monitor the fuel bay area during all draining and fueling operations to ensure that all the fuel has drained from the vehicle and, once the draining process is complete, that the drain pump is turned off.
- 5.4 The test vehicle's engine must not be operated during the fuel exchange.
- 5.5 The test vehicle must be properly grounded prior to any fuel exchange. Do not connect the grounding clip to the trunk latch. If the vehicle is equipped with an automatic pull-down latch mechanism, sparking might result, which could ignite any fuel vapor that is present.
- 5.6 Only electrical equipment designed for operation in a combustible environment may be used in the fuel bay.
- 5.7 Technicians fueling the vehicle must be familiar with the alarm sounds and safety procedures which accompany the fuel bay fire extinguishing system, the combustible gas alarm, and the carbon monoxide alarm.
- (2) 5.8 Eye protection and rubber gloves must be used to prevent the risk of bodily injury. Failure to follow safety policies may result in disciplinary action.
- 5.9 If a vehicle is operated in the fuel bay for more than a few seconds, the exhaust must be routed through the ventilation equipment.
- 5.10 A test vehicle should never be operated between the time fuel has been drained from the vehicle and the time it is refueled.
- 5.11 Special care must be taken to avoid fuel spills. Seek assistance as needed and notify the senior technician should a spill occur. See Attachment B for details regarding how to deal with a fuel spill.

- 5.12 For preconditioning, the Indolene fuel temperature should be within the 45-70 °F range prior to dispensing.

For the Federal Test Procedure (FTP), the Indolene temperature must be greater than 45 °F and less than 60 °F prior to dispensing.

- 5.13 For preconditioning, the methanol fuel is not maintained at any specific temperature.

For the FTP, the proper quantity of methanol fuel is dispensed into a sealed and approved fuel container and then chilled to a temperature of 45-53 °F in the Chemistry Laboratory (Chem. lab) refrigerator or fuel storage room.

- 5.14 For Phase II Fuel testing, the fuel cart must be plugged in and the controls must be set to maintain the fuel at the required temperature.

- 5.15 For 1996 test vehicles, when stored outside the cap must be removed and the filler neck protected to prevent moisture from entering the tank.

## **6. Visual Inspection**

The technician must check the following:

- 6.1 The fuel pumps are on and the system is operational.
- 6.2 Fuel is not leaking from any hoses or nozzles.
- 6.3 The ventilation system is on and operational.
- 6.4 The ground straps are available and operational.
- 6.5 The goggles, methanol-resistant gloves, and spill control materials are available before draining/refueling begins.

## **7. Test Article Preparation**

The technician performing the fuel exchange is responsible for assuring that the following steps are performed prior to the fuel exchange:

- 7.1 Verify that the test documentation corresponds to the vehicle.

7.2 For Preconditioning and Highway Fuel Economy Test (HFET):

The vehicle may be driven into the fuel bay. Roll down all the windows, except if the prep is for the HFET. Turn the engine off.

For the 1978 FTP:

Ensure that the vehicle has been soaked for at least 12 hours after the preconditioning drive. Push or crab the vehicle into the fuel bay and place it near the drain hose. Check that the vehicle windows are down. If they are power windows, do not turn the key to lower them and notify the Vehicle Testing Supervisor. If they are not power windows, roll them down.

For the 1996 FTP:

Ensure that no more than 1 hour has elapsed since the end of the preconditioning drive. Push or crab the vehicle into the fuel bay and place it near the drain hose. Check that the vehicle windows are down. If they are power windows, do not turn the key to lower them and notify the Vehicle Testing Supervisor. If they are not power windows, roll them down.

- (2) 7.3 Connect the ground cable from the fuel draining site to an unpainted, non-insulated metal part attached to the frame of the vehicle. If that point is not available, connect the cable to the exhaust pipe or engine ground strap. Do not connect the grounding cable to the trunk latch if the vehicle is equipped with an automatic pull-down mechanism. Sparking might result, which could ignite any fuel vapors present. Do not connect the cable to the wheel assembly.

- (1) 7.4 On Form 702-01, place a check mark next to "1st," "2nd," "3rd," or "Test" to indicate fueling sequence for the vehicle.

Record the test number and vehicle ID number.

## 8. Test Procedure

The technician is responsible for assuring that the following steps are completed during the fuel exchange procedure and for completing Form 702-01. For Phase II Fuel testing, a fuel cart is used to chill the fuel, otherwise all steps are identical to those used for gasoline for the type of testing being performed.

### 100 Fuel Drain Sequence

- (2) 101 Ensure that the grounding strap is properly connected and put on the protective eye wear and rubber gloves. The eye wear and gloves must be worn during all draining and fueling of the vehicles.

102 Remove the vehicle fuel cap and place it where it is safe from possible damage.

103 Gasoline Vehicles:

Connect the fuel bay drain pump hose to the vehicle. If necessary, open the vehicle fuel drain valve. In the case of a fuel spill, refer to Attachment B.

If the vehicle has an auxiliary tank, drain it by connecting the fuel drain valve to the drain pump hose or by inserting a drain line through the auxiliary tank filler neck.

Turn the drain pump valve to the “On” position. The “On” position is parallel to the pump line. The valve is located beneath the blue drain pump on the fuel bay wall. On Form 702-01, record the start-of-drain time.

Drain the vehicle fuel tank, taking care to ensure thorough draining. Stop the drain pump when the test vehicle fuel tank is empty by turning the drain valve to the “Off” (perpendicular to the drain line) position. An empty tank is indicated when little or no fuel flows through the drain hose sight gauge. Disconnect the drain hose from the vehicle. On Form 702-01, record the end-of-drain time.

Methanol Vehicles:

Connect the drain hose, which has two female-type quick disconnects, to the quick disconnect located on the methanol fuel drain pump and to the vehicle drain quick disconnect. In the case of a fuel spill, refer to Attachment B.

If the vehicle has an auxiliary tank, drain it by connecting the fuel drain valve to the drain pump hose or by inserting a drain line through the auxiliary tank filler neck.

Ensure that the “Open/Close” valve located on top of the methanol drain tank is in the “Open” position before draining the vehicle. The tank is located outside the building directly behind the fuel bay area; it has a white #4 stenciled on it. The valve “Open” position is parallel to the line running to the drain tank.

Turn the methanol air supply valve to the “On” position. The valve is located to the left of the methanol fuel nozzle rack. The “On” position is parallel to the air supply line.

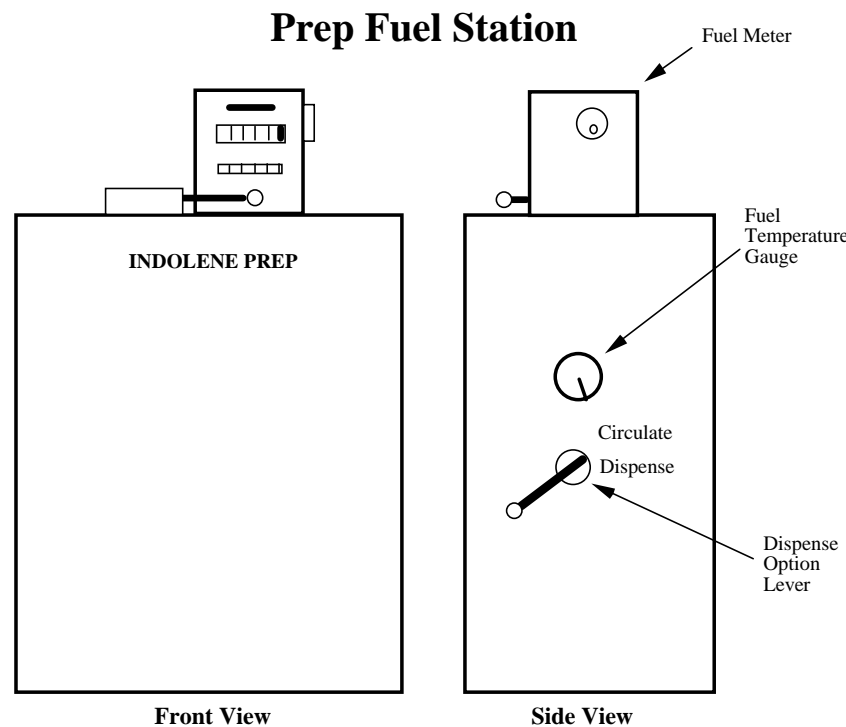
Turn the drain valve, located above the methanol fuel drain pump and to the right of the dispensing nozzles, to the "On" (parallel to the drain line) position to begin the fuel drain. On Form 702-01, record the start-of-drain time.

Drain the vehicle fuel tank, taking care to ensure thorough draining. An empty tank is indicated when little or no fuel flows through the drain hose sight gauge. Stop the methanol drain pump by turning the methanol air supply valve to the "Off" (perpendicular to the drain line) position. On Form 702-01, record the end-of-drain time.

## 200 Fueling Gasoline Vehicles

The fuel bay has two permanent gasoline dispensing stations. For this procedure, the stations labeled "Indolene Test" and "Indolene Prep." will be used. Each station has its own fuel meter, dispense option lever, and fuel temperature gauge. The dispense option lever and temperature gauge are located on the side of the station. The dispense lever allows you to select either "Circulate" or "Dispense," and the gauge indicates the temperature of the fuel in the system.

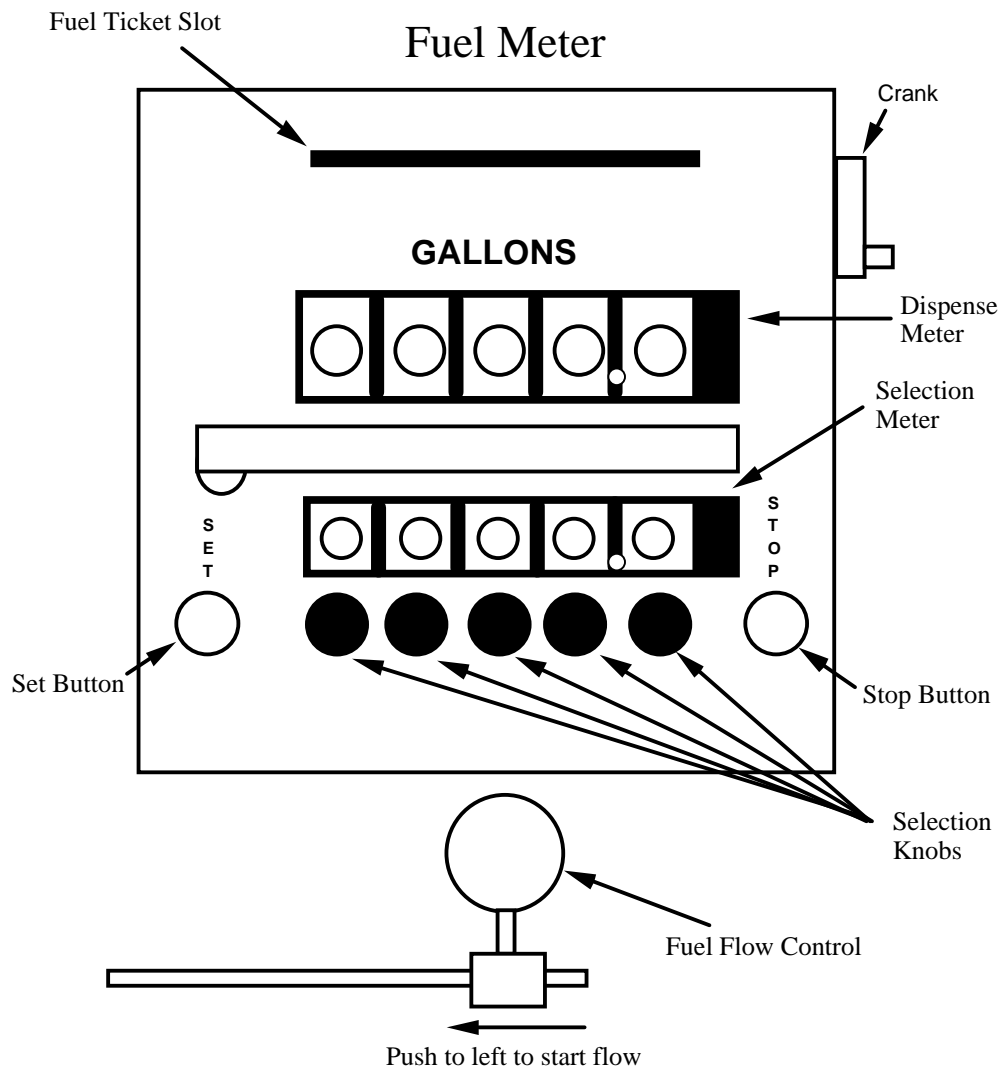
For Phase II Fuel, use the fuel cart and record the number of gallons dispensed on Form 702-01.





- 201 Reset the dispense meter to zero by turning the crank on the right side of the fuel meter one complete revolution.

If the meter does not read zero, rotate the crank again.



- 202 Push the “Set” button until a click is heard. This will allow the use of the black “Selection” buttons to dial in the number of gallons you wish to circulate or dispense.

The black buttons, from right to left, incrementally represent 0.1 gallon, 1 gallon, 10 gallons, 100 gallons, and 1000 gallons. Each time a button is pushed, the number displayed in the “Selection” meter will increase by a value of 1.

If a value of zero is desired, and a number already exists in the selection meter, push the button as many times as necessary until a zero shows on the meter.

Example: You need to circulate 8.0 gallons of fuel. The dispense meter is reset to zero and the selection meter reads 0010.3 gallons

Push the right button (0.1-gallon increments) seven times, until the number “0” appears in the tenths column of the meter. The meter will now read 0010.0 gallons.

Push the second button (1-gallon increments) eight times, until the number “8” appears in the ones column of the meter. The selection meter will now read 0018.0 gallons.

Finally, push the third button (10-gallon increments) nine times, until the number “0” appears in the tens column of the meter.

The selection meter will now display 0008.0 gallons.

- 203 Use the “Selection” buttons as described above and dial in 0005.0 gallons.
- 204 Ensure that the dispense option lever is in the “Circulate” position.
- 205 Push the fuel flow control lever to the left. The dispense meter will start to move, indicating that fuel is being circulated through the system. When 5.0 gallons of fuel have been circulated, the fuel control lever will return to the right and stop the fuel flow.

- (1) 206 The fuel is maintained to within the ranges specified below. Check the gasoline temperature in the following manner:

For PREP and the HFET use the “Indolene Prep” Station

There are no CFR specifications for preconditioning or HFET fuel temperature.

Before dispensing the fuel, verify that the fuel temperature is within the 58-66 °F range. If the prep fuel temperature is out of the 58-66 °F range, notify the Calibration and Maintenance Coordinator in Quality Control Group.

If the fuel temperature is out of the 58-66 °F range but is in the 45-70 °F range, the prep fuel dispenser may still be used. In the “Comments” section of Form 702-01, note that you notified the Calibration and Maintenance Coordinator in Quality Control Group.

If the prep fuel dispenser temperature is not within the 45-70°F range, check the “Indolene Test” dispenser temperature, and if it is within the 45-70 °F range, use the test fuel dispenser to fuel the vehicle.

For the FTP use the “Indolene Test” Station:

Before dispensing the fuel, verify that the fuel temperature is within the 45-53 °F range. If the fuel temperature is not within the 45-53 °F range, notify the Calibration and Maintenance Coordinator in Quality Control Group.

The CFR requires that the fuel temperature for the 1978 test sequence must be between 45 and 60 °F prior to dispensing. The CFR does not specify a fuel temperature range for the 1996 test sequence, however to maintain consistency, the fuel should be between 45 and 60 °F prior to dispensing.

- 207 Remove the nozzle/hose assembly from the fuel station bracket. Insert the fuel nozzle into the tank filler neck of the vehicle to be filled. Pull the nozzle dispense mechanism and set it in position to dispense fuel.
- 208 On Form 702-01, record the dispenser fuel temperature.
- 209 Insert Form 702-01 into the dispenser fuel ticket slot. Place the bottom of the ticket in first, with the text face down.
- 210 Reset the dispense meter to zero by turning the crank one complete revolution.

- 211 On the Vehicle Specification Report (VSR), look up the 40% fuel tank volume. This value is located under the “Main-Tank Capacity Volume” header in the lower left corner of the VSR. The correct value to use is under the word “Volume.” The 40% value for the auxiliary fuel tank is located under the “Auxiliary-Tank Capacity Volume” header and is also under the word “Volume.”
- 212 Push the “Set” knob until a click is heard. Use the selection knobs and dial in the required number of gallons to be dispensed.
- 213 Move the dispense option lever to the “Dispense” position.
- 214 Push the fuel flow control lever to the left. The dispense meter will start to move and dispense fuel when you depress the nozzle. The pump will automatically stop when the number of gallons selected has been dispensed.
- If at any time you wish to stop the flow of gasoline to the nozzle, push the “Stop” button located on the right side of the fuel meter.
- 215 If the vehicle has an auxiliary tank, it must also be filled to 40% capacity using the same procedure outlined in Steps 201 through 214.
- 216 Release the nozzle dispense mechanism. Remove the fuel nozzle from the filler neck and place it in the pump station bracket. In the case of a fuel spill, refer to Attachment B.
- 217 For PREP or HFET:  
Replace the vehicle fuel cap in the filler neck and tighten it according to the manufacturer’s requirements.
- For a 1978 FTP:  
Do not replace the fuel cap in the vehicle fuel-filler neck. Place it in a safe, secure location. On Form 702-01, write “NA” next to the “Cap On Time.”
- For a 1996 FTP:  
Within 1 minute of refueling, replace the vehicle fuel cap in the filler neck and tighten it according to the manufacturer’s requirements. On Form 702-01, record the “Cap On Time.”
- 218 Disconnect the ground strap.
- 219 Return the dispense option lever to the “Circulate” position.

220 To release Form 702-01, reset the dispense meter to zero by turning the crank one complete revolution.

221 On Form 702-01, record the end-of-fueling time, operator ID, and the date.

If the sequence of draining and refueling is delayed for more than 10 minutes, the reason for the delay must be entered in the "Comments" section of Form 702-01.

222 Place Form 702-01 on the clipboard.

(2) 223 Vehicle disposition following refueling:

For the HFET-only:

Within 1 hour of refueling the vehicle shall be driven onto the dynamometer.

For the 1978 PREP:

Within 1 hour of refueling the vehicle shall be driven onto the dynamometer.

For the 1996 PREP:

Drive the vehicle to the soak area. The vehicle shall be soaked at 68 - 86 °F for 6 to 36 hours between the end of refueling and the beginning of the preconditioning drive.

For the 1978 FTP:

Connect a digital thermometer to the fuel tank thermocouple and verify that the fuel temperature is less than 60 °F. If the fuel temperature is less than 60 °F, push or crab the vehicle to the SHED or heat build area. If the fuel temperature is over 60 °F, notify a senior technician.

For the 1996 FTP:

Push or crab the vehicle to the canister preconditioning area.

**300 Fueling Methanol Vehicles - PREP and HFET**

There are no CFR specifications for prep fuel temperature; therefore, the temperature of the fuel will be that of the current methanol fuel dispensing system. The methanol fuel dispensing system is not temperature controlled.

301 Ensure that Steps 101 through 104 that apply to methanol vehicles have been completed. On the VSR, look up the 40% fuel tank volume. This value is located under the “Main-Tank Capacity Volume” header in the lower left corner of the VSR. The correct value to use is under the word “Volume.” The 40% value for the auxiliary fuel tank is located under the “Auxiliary-Tank Capacity Volume” header and is also under the word “Volume.”

302 Turn the methanol air supply valve, located underneath the proper fuel nozzle to be used (M50, M85, or M100), to the “Open” position. The “Open” position is when the green handle is pointing up. Make sure the other supply valves are closed (green handle pointing to the right).

303 Depress and hold the “On/Total” button located on the fuel flow system for approximately 3 seconds or until the fuel meter reads zero.

304 Remove the nozzle/hose assembly from the methanol fuel station bracket. Insert the fuel nozzle into the tank filler neck of the vehicle to be fueled. Squeeze the nozzle trigger mechanism and set it in position to dispense fuel.

305 Dispense the required number of gallons (40% volume from VSR) into the vehicle. There is no automatic gallon counter on this system; therefore, the dispensing of the fuel must be monitored and stopped manually.

(2) 306 Release the nozzle trigger mechanism. Remove the fuel nozzle from the filler neck, turn off the air supply valve (the green handle should point to the right) and place the nozzle in the pump station bracket.

If the vehicle is being preconditioned for a 1978-sequence FTP, replace the fuel cap according to the manufacturer’s requirements. Within an hour following completion of vehicle fueling the vehicle shall be driven onto the dynamometer.

If the vehicle is being preconditioned for a 1996-sequence FTP, the fuel cap(s) shall be installed according to the manufacturer’s requirements within 1 minute of fueling. The vehicle shall be soaked for at least 6 hours after being fueled, then the vehicle shall be driven onto the dynamometer.

If the vehicle is being fueled for a HFET, replace the vehicle fuel cap in the filler neck and tighten it according to the manufacturer’s requirements. The vehicle shall be driven onto the dynamometer.

- 307 On Form 702-01, record the end-of-fueling time, operator ID, and date.
- If the sequence of draining and refueling is delayed for more than 10 minutes, the reason for the delay must be entered in the Comments section of Form 702-01.
- 308 Attach the digital thermometer lead to the portable methanol fuel storage tank to read the temperature of the fuel. Be sure the thermometer is set to read the proper thermocouple type.
- 309 On Form 702-01, record the fuel temperature and fuel blend. If draining and fueling a vehicle for the HFET, place a check mark in the "Test" box.
- 310 Place Form 702-01 on the clipboard. Do not complete Steps 311 through 319 if the vehicle is drained and fueled for the HFET, go to Step 319.
- 311 Ensure that the "Open/Close" valve located on the bottom of the portable methanol fuel storage container is in the "Closed" position prior to fueling.
- 312 Obtain enough portable methanol fuel storage containers to hold the volume of fuel required for the FTP. The containers each have a 5-gallon capacity. This step is performed to ensure that chilled fuel (45-53 °F) will be available for the FTP test the next day.
- 313 Fill the container(s) with methanol fuel equal to 40% of the tank volume following Steps 302 through 310.
- 314 Turn off the methanol air supply valve by turning it perpendicular to the air supply line.
- 315 On Form 702-01, record the test number, fuel blend, and vehicle ID number. Place a check mark in the "Test" box. Place the form in the designated slot on the container for the fuel ticket.
- 316 Attach one paper tag to each methanol fuel storage container and label the tag with the date, operator ID, vehicle ID number, fuel blend, and test number.
- 317 Notify Chemistry Lab personnel that you have fuel to be stored and that it will need to be chilled to 45-53 °F.
- 318 Use the designated methanol container cart and transfer the containers to the Vapor Pressure Laboratory.

- (2) 319 Vehicle disposition following methanol refueling:
- For the HFET-only:
- Within 1 hour of refueling the vehicle shall be driven onto the dynamometer.
- For the 1978 PREP:
- Within 1 hour of refueling the vehicle shall be driven onto the dynamometer.
- For the 1996 PREP:
- Drive the vehicle to the soak area. The vehicle shall be soaked at 68 - 86 °F for 6 to 36 hours between the end of refueling and the beginning of the preconditioning drive.

**400 Fueling Methanol Vehicles - FTP**

- 401 Drain the vehicle following Steps 101 through 104.
- 402 Using the designated methanol container cart, go to the vapor pressure lab and retrieve the methanol fuel container(s) with the correct fuel for the test vehicle. Return to the fuel bay. The methanol will be transferred from the container to the vehicle using gravity feed.
- 403 Connect the digital thermometer to the storage container's thermocouple outlet. Be sure the thermometer is set to read the proper thermocouple type. Verify that the fuel temperature is between 45 and 53 °F prior to fueling the vehicle.
- 404 Remove Form 702-01 from the container slot and record the fuel temperature.
- 405 Ground the vehicle and fuel container with grounding wires.
- 406 Leave the containers on the cart. Insert the fuel line into the filler neck of the vehicle. Turn the fuel container main fuel "On/Off" valve to the "On" position and use it to regulate the fuel flow into the vehicle.
- 407 When the container is empty, release the trigger and remove the fuel nozzle from the filler neck and return it to the cart.



- 408 If the vehicle has an auxiliary tank, it must also be filled to 40% capacity using the same procedure outlined above for filling the main tank to 40% capacity following Steps 401 through 407.

**Note:** In the case of a fuel spill, refer to Attachment B.

- 410 On Form 702-01, record the end-of-fueling time. If the sequence of draining and refueling is delayed for more than 10 minutes, the reason for the delay must be entered in the Comments section of Form 702-01.

- 411 Place Form 702-01 on the clipboard until it has been validated. Remove the tags from the fuel containers and place them on the clipboard also.

- 412 Remove the ground cable from the vehicle and the storage container.

- 413 Use the thermocouple checker to verify the fuel temperature in the tank.

If the fuel temperature in the tank is more than 9 °F different from the dispenser temperature, there may be a problem with the draining of the tank or with the thermocouple. Notify the VT Supervisor.

- 414 For the 1978 FTP:

Connect a digital thermometer to the fuel tank thermocouple and verify that the fuel temperature is less than 60 °F. If the fuel temperature is less than 60 °F, push or crab the vehicle to the SHED or heat build area. If the fuel temperature is over 60 °F, notify a senior technician.

For the 1996 FTP:

Push or crab the vehicle to the canister preconditioning area.

## 9. Data Input

- 9.1 Form 702-01 is completed by the technician who performs the draining and fueling of the test vehicle.
- 9.2 Paper tags for the fuel containers are completed by the technician who fills the container. The test number, ID number, fuel blend, and date must appear on each tag.

**10. Data Analysis**

- 10.1 All forms and test records are verified by a qualified technician who did not record the data.
- 10.2 For vehicles following the 1996 test sequence, verify that the fuel cap(s) were installed within 1 minute of fueling.
- 10.3 For vehicles following the 1996 test sequence, verify that the vehicle was refueled within 1 hour of completion of the preconditioning drive.
- 10.4 The verifying technician checks the data for completeness, correctness, and compliance with EPA regulations. They will write their identification number and the date in the "Verified By" area of the forms. This certifies that the data are correct and complete.

**11. Data Output**

- 11.1 Form 702-01 remains with the test data packet and is delivered to the Data Processor upon completion of the FTP or Highway Fuel Economy Test.
- 11.2 For methanol-fueled vehicles, paper tags remain with the data packet and are delivered to the Data Processor upon completion of the FTP or Highway Fuel Economy Test.

**12. Acceptance Criteria**

- 12.1 The required fuel type must be used and correctly documented.
- 12.2 Vehicles must be fueled to 40% of fuel tank capacity.
- 12.3 The prep fuel temperature for gasoline-fueled vehicles must be within the 45-70 °F range.
- 12.4 For the FTP, the temperature of the dispensed fuel (gasoline and methanol) must be between 45-60 °F prior to fueling the test vehicle.
- 12.5 For vehicles following the 1996 test sequence, the fuel cap(s) must be installed within 1 minute of fueling.
- 12.6 For vehicles following the 1996 test sequence, the vehicle must be refueled within 1 hour of completion of the preconditioning drive.

- 12.7 For vehicles following the 1996 test sequence, the fuel tank cap(s) of gasoline and methanol-fueled vehicles shall be removed during any period that the vehicle is parked outdoors. Care must be taken to prevent entry of water or other contaminants into the fuel tank.

### **13. Quality Provisions**

- 13.1 The technician follows the sequence of steps on Form 702-01, recording data as needed.
- 13.2 If a vehicle is incorrectly fueled, a senior technician is notified and consulted for corrective action.
- 13.3 The validator's and operator's identification numbers must appear on all forms and test records, certifying that the data are correct and complete.
- 13.4 The prep fuel temperature for gasoline-fueled vehicles should be within the 58-66 °F range.
- 13.5 Deviations from this procedure are documented on Form 902-01. In general, these deviations will void the test. However, the customer may choose to accept the test as variant. To do this, the customer must indicate acceptance by signing and dating Form 902-01.

## Attachment A

**Vehicle Fuel Exchange**

Fueling: \_\_\_ 1st \_\_\_ 2nd \_\_\_ 3rd \_\_\_ Test

Test Number: \_\_\_\_\_

Vehicle ID#: \_\_\_\_\_

Start-of-Drain Time: \_\_\_\_\_

End-of-Drain Time: \_\_\_\_\_

Dispenser Fuel Temperature: \_\_\_\_\_ °F

End-of-Fueling Time: \_\_\_\_\_

Cap On Time: \_\_\_\_\_

Operator ID: \_\_\_\_\_ Date: \_\_\_\_\_

To print Auxiliary Tank fill, pull fuel ticket up to this line

Verified by: \_\_\_\_\_ Date: \_\_\_\_\_

Comments:

Fuel Code & No.	Gallon Reading	10 ths

Fuel Code	Fuel Type
AA	Phase II
BB	Unleaded Test
DD	Unleaded Prep
EE	MTBE #1
FF	Diesel
GG	CAAB
JJ	Unleaded 91 RON
KK	Other

Form 702-01: 05-08-97

**Attachment B****Fuel Spill Clean-up**

Fuel spilled on the floor must be sprayed with “No Flash.”

Do not spray the vehicle with “No Flash.”

The spill then must be covered with absorbent floor dry material (available near the fueling area).

The absorbent material must be gathered from the floor, with hydrocarbon-absorbing towels, and discarded in the flammable waste container.

Remove fuel spilled on a vehicle with a clean hydrocarbon-absorbing towel. Discard in the designated flammable waste container.

If the flammable waste container is full, the Safety Officer must be notified to have it emptied.

If the situation is judged to be an emergency, activate the “Main Fuel Supply Emergency Air Shutoff” by pushing one of the fuel shutoff switches located near the fuel bay.

“Emergency Stop” buttons are also located throughout the fuel bay.

Any emergency stop button will stop the flow of fuel by shutting down the complete fuel bay system, not just the pump being used. Therefore, these buttons should only be used in an emergency situation.

After any emergency stop button is used, the fuel system will have to be restarted. If you are not familiar with the fuel system, contact the Vehicle Testing Supervisor. Start the system and complete the required entries in the Laboratory Fuel System Log Book.

In an emergency, the methanol fuel system may be shut off by turning the “Methanol Emergency Air Valve,” located on the left side of the methanol fuel dispensing rack, to the “Off” (perpendicular to the air line) position.

A fuel spill may void the prep or test. For that reason, the Vehicle Testing Supervisor should be informed of any spill that occurs.